GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 3435/1
File Number: DEC13693
Duration of Permit: from 14 November 2010 to 14 November 2020

PERMIT HOLDER

Muchea Sands Pty Ltd
Ross Maitland Love

LAND ON WHICH CLEARING IS TO BE DONE

Lot 3 on Diagram 34114

AUTHORISED ACTIVITY

Clearing of up to 38.7 hectares of native vegetation within the area hatched yellow on attached Plan 3435/1.

CONDITIONS

1. Authorised activity

The Permit Holder shall not clear more than 38.7 hectares of native vegetation, within the area hatched yellow on attached Plan 3435/1.

2. Type of clearing authorised

The Permit Holder shall not allow more than 2.5 hectares of the area hatched yellow on attached Plan 3435/1 to remain unvegetated at any one time.

3. Fauna management

(a) Prior to clearing pursuant to this Permit the area shall be inspected by a *fauna specialist* who shall identify the presence of *habitat tree(s)* suitable for use by *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo).

(b) The Permit Holder shall not clear *habitat tree(s)* identified under condition 3(a) during the breeding months of *Calyptorhynchus latirostris* (Carnaby's Black-Cockatoo) from September through to January.

4. Dieback control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of introduction and spread of *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) shall only move soils in *dry conditions*;
(c) ensure that no *dieback*-affected soil, *mulch*, *fill* or other material is brought into an area that is not affected by *dieback*; and
(d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

5. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

(a) In relation to the clearing of native vegetation authorised under this Permit:
   (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
   (ii) the date that the clearing commenced;
   (iii) the date the extraction operations ceased; and
   (iv) the size of the area cleared (in hectares).

6. Reporting

(a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 5 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

(b) Prior to 14 August 2018, the Permit Holder must provide to the CEO a written report of records required under condition 5 of this Permit where these records have not already been provided under condition 6(a) of this Permit.

Definitions

The following meanings are given to terms used in this Permit:

dieback means the effect of *Phytophthora* species on native vegetation;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

fill means material used to increase the ground level, or fill a hollow;

habitat tree(s) means trees that have a diameter, at average adult human chest height, of greater than 70cm, healthy but with dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna, or where these are not present then healthy but with the potential to contain hollows and roosts;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

Matt Warnock
A/ MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

14 October 2010

Plan 3435/1

LEGEND

- Cadastre
- Clearing Instruments
- Areas Approved for Clear
- Gingin 50cm Orthomosaic - Landgate 2008

N

0 ~250 m

Scale 1:10000
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Date 14/10/10

M Warnock

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowleged by the agency acronym in the legend.

Department of Environment and Conservation

Our environment, our future

** Project Data. This data has not been quality assured. Please contact map author for details.*

Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3435/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Ross Maitland Love Muchea Sands Pty Ltd**

1.3. Property details

Property: LOT 3 ON DIAGRAM 34114 (BREERA 6503)
LOT 3 ON DIAGRAM 34114 (BREERA 6503)
Local Government Area:
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
38.7		Mechanical Removal	Extractive Industry

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The area under application is mapped as the following vegetation types. - J.S. Beard (1980) vegetation association 1027, described as a mosaic of medium open woodland comprising Eucalyptus marginata (Jarrah) and Corymbia calophylla (Marri) with low woodland comprising Banksia species, and medium sparse woodland comprising Eucalyptus marginata (Jarrah) and Corymbia calophylla (Marri). - E.M. Heddle et al (1980) Reagan Complex, described as low open woodland of Banksia species and Eucalyptus todtiana (Pricklybark) to closed heath depending on the depth of soil.	A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009) identified vegetation comprised of scattered trees of Eucalyptus todtiana (Pricklybark), Nuytsia floribunda (WA Christmas Tree), Banksia attenuata (Slender Banksia) and Banksia menziesii (Firewood Banksia), some scattered Corymbia calophylla (Marri) and Eucalyptus marginata (Jarrah), with occasional small dense patches of sandplain vegetation, and native and introduced grasses scattered throughout.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	A flora and vegetation survey of the area under application undertaken by Dr Stephen Connell in September and October 2006 (Connell 2006) identified vegetation comprised of Corymbia calophylla (Marri), Acacia spp., Banksia spp. and Jacksonia spp. dominated woodland interspersed with heaths.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal may be at variance to this Principle

This application is for the proposed clearing of 38.7 hectares of parkland cleared native vegetation on Lot 3 on Diagram 34114 for the purpose of sand extraction. An eight metre wide haul road is also proposed to facilitate cartage of the sand resource.

The applicant advised that the intention is to clear cells up to 2.5 hectares in size and progressively rehabilitate these through pasture establishment and possibly farm forestry (Sandalwood) enterprise following completion of sand extraction. Using a staged clearing approach the largest exposed area would be up to 2.5 hectares at a time over the proposed 20 year lifespan of the sand extraction activity. Sand extraction is proposed to have an

average depth of 15 metres across the site, well above underlying rock to avoid potential acid sulphate soil issues. The landform following sand extraction will be near horizontal with batters of 2:1 (approximately 30 degrees); small batters on the western (currently downslope) side of the site and large batters on the eastern (currently upslope) side. Revegetation of the batter slopes is proposed, with consideration being given to establishing commercial Banksia or other native species.

The area under application is mapped as Eucalyptus marginata (Jarrah) and Corymbia calophylla (Marri) with low woodland comprising Banksia species and Eucalyptus todtiana (Pricklybark) and closed heath.

A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009). With the exception of occasional small (approximately 0.1-0.5 hectares each in size) dense patches of sandplain vegetation which is considered to be in 'good' condition (Keighery 1994), the native vegetation is extensively parkland cleared and comprised predominantly of mature trees over introduced grasses and considered to be in 'degraded' condition. A comprehensive floristic survey was not undertaken as part of this site inspection (and the time of year is not ideal for a survey), however opportunistic observations identified that the native species within the area under application include:
- scattered trees of Eucalyptus todtiana (Pricklybark), Nuytsia floribunda (WA Christmas Tree), Banksia attenuata (Slender Banksia), Banksia menziesii (Firewood Banksia) and Xanthorrhoea preissii (Grasstree), some Corymbia calophylla (Marri) and Eucalyptus marginata (Jarrah);
- occasional small dense patches of sandplain vegetation with understorey comprising Xanthorrhoea preissii (Grasstree), Hakea prostrata (Harsh Hakea), Ficinia nodosa (formerly Isolepis nodosa, Knotted Club Rush), Adenanthos cygnorum (Woollybush), Jacksonia furcellata (Grey Stinkwood), Jacksonia sternbergia (Green Stinkwood), Macrozamia riedlei (Zamia), Kunzea sp., Gompholobium sp., various peas and small shrubs; and
- native herbs (including Podolepis and Podotheca spp.) and grasses (including Austrostipa spp.) and extensive introduced grasses (including pasture species plus clumps of Ehrharta and Eragrostis spp.) scattered throughout the area under application.

A flora and vegetation survey of the property undertaken by Dr Stephen Connell in September and October 2006 (Connell 2006) identified vegetation comprised of Corymbia calophylla (Marri), Acacia spp., Banksia spp. and Jacksonia spp. dominated woodland interspersed with heaths. Chamelaucium lullfitzii (Gingin Wax) was mapped along the eastern and northern perimeters of the property (outside of the area under application).

A flora and vegetation survey of adjacent Ioppola Road reserve undertaken by RPS Bowman Bishaw Gorham in August 2006 (RPS BBG 2006) identified Chamelaucium lullfitzii (Gingin Wax) within the road reserve (outside of the area under application). Calytrix sylvana (P4) and Schoenus natans (P4) were also mapped within the road reserve.

There are several records of four priority ecological communities (PECs) within 10 kilometres of the area under application.
- Northern Banksia attenuata - Banksia menziesii woodlands (floristic community type SCP23b)
- Low lying Banksia attenuata woodlands or shrublands (floristic community type SCP21c)
- Banksia ilicifolia woodlands (floristic community type SCP22)
- Banksia woodland of the Gingin area restricted to soils dominated by yellow to orange sands
The nearest PEC 'Banksia woodland of the Gingin area restricted to soils dominated by yellow to orange sands' has been identified at two locations within 500 metres and either side of the area under application.

Aerial photography indicates the presence of large areas of better-condition native vegetation on adjacent and nearby properties, which is likely to have greater biodiversity values than the area under application which is considered to be in 'degraded' condition (Keighery 1994).

There are more than 20 records of priority flora occurrences within 10 kilometres of the area under application. The nearest are Stylidium longitubum (Jumping Jacks, priority 3) and Conostephium magnum (priority 4) within 2 kilometres. Stylidium longitubum is described an erect annual (ephemeral) herb between 0.05-0.12 metres high with pink flowers between October and December, growing in sandy clay or clay soils in association with seasonal wetlands. Conostephium magnum is described an erect compact many-stemmed shrub to 2 metres high with pink and purple flowers between July and September, growing in white-grey sands (sometimes associated with laterite gravels) in association with sand dunes, swampland, disturbed roadside, drainage channels and open woodland. The area under application contains habitat suitable for Conostephium magnum.

Rare flora Chamelaucium lullfitzii (Gingin Wax) has been recorded within 200 metres of the area under application. Rare flora Ptychosema pusillum (Dwarf Pea) has been recorded from similar habitat as that found within the area under application.

The proposed clearing may be at variance with this principle, however given the predominantly degraded condition of the vegetation the impacts are likely to be minimal.

Methodology

References
- DEC 2009
- Connell 2006
- RPS BBG 2006

- Western Australian Herbarium, DEC. Text used with permission (http://florabase.dec.wa.gov.au/help/copyright). Accessed on Tuesday, 1 December 2009)
- Keighery 1994

GIS datasets
- Pre-European Vegetation
- Heddle Vegetation
- Interim Biogeographic Regionalisation of Australia
- Gingin 50cm Orthomosaic - Landgate 2006

SAC biodatasets
- TEC/PEC Dataset 14/09/09
- WAHerb

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009) identified mature trees that may provide roosting and nesting habitat for avian and arboreal fauna. DEC staff also recorded opportunistic observations of Grey Kangaroo (Macropus fuliginosus), Magpie, Ringneck Parrot and unidentified small birds.

There are no records of threatened and priority fauna occurrences within 10 kilometres of the area under application. The nearest are Dasyurus geoffroii (Chuditch, vulnerable) approximately 12.2 kilometres east and Neelaps calonotus (Black-striped Snake, priority 3) approximately 12.6 kilometres north. Fauna Habitat Notes (DEC 2007) indicates that the Chuditch occupies large home ranges, is highly mobile and appears able to utilise bush remnants and corridors.

It is likely that Calyptorhynchus latirostris (Carnaby's Black-Cockatoo, endangered) utilises the vegetation under application, but is unlikely to be reliant upon it given the presence of better-condition vegetation on adjacent and nearby properties. The Carnaby's Black-Cockatoo forages on a variety of Proteaceae (e.g. Banksia spp. and Grevillea spp.), Myrtaceae (e.g. Corymbia calophylla, Eucalyptus marginata and Eucalyptus gomphocephala) and Casuarinaceae (e.g. Allocasuarina spp.) plants (Shah 2006).

Aerial photography indicates the presence of large areas of better-condition native vegetation on adjacent and nearby properties, which is likely to have more significance as habitat for indigenous fauna than the area under application which is considered to be in 'degraded' condition (Keighery 1994).

The proposed clearing is not likely to be at variance with this principle.

To further minimise the impact to Carnaby's Black-Cockatoo, the clearing permit will contain a condition preventing the clearing of habitat trees during breeding season.

Methodology

References
- DEC 2009
- DEC 2007
- Shah 2006

GIS datasets
- Gingin 50cm Orthomosaic - Landgate 2006

SAC biodatasets
- Threatened Fauna

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal may be at variance to this Principle

There are more than 20 records of rare flora occurrences within 10 kilometres of the area under application.

Chamelaucium lullfitzii (Gingin Wax) has been recorded within 200 metres of the area under application, with two records of this species occurring on the same property. This species is described as an erect, open, straggly shrub to two metres high with white flowers between September and December, growing in white or yellow sand with leaf litter on plains, hilltops, rises, crests and lower slopes of scarp, and road verges.

Ptychosema pusillum (Dwarf Pea) has been recorded from similar habitat as that found within the area under application. This species is described as a perennial herb mostly between 0.05-0.1 metres high with red, brown and yellow flowers between August and October, growing in sand on rises.

A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009) did not identify rare flora within the area under application. However it should be noted that a quadrat-based flora survey in accordance with EPA Guidance Statement No.51 was not undertaken by DEC staff on this site

inspection to confirm the presence or absence of rare flora.

A flora and vegetation survey of the property undertaken by Dr Stephen Connell in September and October 2006 (Connell 2006) identified Chamelaucium lullfitzii (Gingin Wax) along the eastern and northern perimeters of the property (outside of the area under application).

A flora and vegetation survey of adjacent Ioppola Road reserve undertaken by RPS Bowman Bishaw Gorham in August 2006 (RPS BBG 2006) identified Chamelaucium lullfitzii (Gingin Wax) within the road reserve (outside of the area under application).

Given the possibility of nearby rare flora being impacted by changed local hydrology (water table level) that is likely to result from sand extraction, the proposed clearing may be at variance with this principle. However given the predominantly degraded condition of the vegetation the impacts are likely to be minimal.

Methodology

References
- Keighery 1994
- DEC 2009
- Connell 2006
- RPS BBG 2006
- Western Australian Herbarium, DEC. Text used with permission (http://florabase.dec.wa.gov.au/help/copyright). Accessed on Tuesday, 1 December 2009)
- EPA Guidance Statement No.51

SAC biodatasets
- WAHerb
- DeFl

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are several records of three threatened ecological communities (TECs) within 10 kilometres of the area under application.
- Perth to Gingin Ironstone Formation
- Herb-rich saline shrublands in claypans (floristic community type SCP07)
- Banksia attenuata woodlands over species-rich dense shrublands (floristic community type SCP20a)

The nearest TEC 'Banksia attenuata woodland over species rich dense shrublands' has been identified within 450 metres of the area under application.

A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009) did not identify TECs within the area under application. However it should be noted that a quadrat-based vegetation survey was not undertaken by DEC staff on this site inspection to confirm the presence or absence of TECs.

A flora and vegetation survey of the property undertaken by Dr Stephen Connell in September and October 2006 (Connell 2006) determined that no TECs were present on the property.

Given the extensive 'degraded' condition (Keighery 1994) of the native vegetation (and 'good' condition in occasional small dense patches of sandplain vegetation) within the area under application, it is unlikely that the presence of a TEC could be determined.

The proposed clearing is not likely to be at variance with this Principle.

Methodology

References
- DEC 2009
- Connell 2006
- Keighery 1994

SAC biodatasets
- TEC/PEC Dataset 14/09/09

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments

Proposal is not likely to be at variance to this Principle

The Environmental Protection Authority (EPA) supports the retention of remnant native vegetation to a 30% threshold level as recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA 2000).

The area under application is mapped as J.S. Beard (1980) vegetation association 1027, which had approximately

56.16% (approximately 22,203 hectares) of its pre-clearing extent remaining within the Swan Coastal Plain bioregion in 2007 (Shepherd 2007).

The area under application is mapped as E.M. Heddle et al (1980) Reagan Complex, which had approximately 38% (approximately 3,455 hectares) of its pre-clearing extent remaining within the Swan Coastal Plain bioregion in 1998. In 2009 the pre-clearing extent is likely to be less than 30%.

The vegetation under application is in predominantly 'degraded' condition (Keighery 1994). Aerial photography indicates the presence of large areas of better-condition native vegetation on adjacent and nearby properties. While better-condition native vegetation is present in close proximity the area under application is unlikely to be considered to be significant as a remnant.

The proposed clearing is not likely to be at variance with this Principle.

Methodology

References
- Keighery 1994
- EPA 2000
- EPA 2006
- DEC 2007b
- Heddle et al 1980

GIS datasets
- Pre-European Vegetation
- Heddle Vegetation
- Interim Biogeographic Regionalisation of Australia

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is not likely to be at variance to this Principle

There are no wetlands or watercourses mapped within the area under application.

A site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009) identified several terrestrial species of native vegetation on a sandy slope. No wetland-dependent native vegetation was identified.

The proposed clearing is not likely to be at variance with this Principle.

Methodology

References
- DEC 2009

GIS datasets
- Gingin 50cm Orthomosaic - Landgate 2006
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
- Hydrography, linear (medium scale, 250k GA)

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal is not likely to be at variance to this Principle

The landform and soils of the area under application are mapped as type AC2, described as gently undulating plateau underlain by sedimentary rocks, with chief soils of yellow earthy sands with siliceous sands (Northcote et al, 1960-68). The area under application is located on a west-facing slope at approximately 100-130 metres above sea level.

The earthy soils are considered to be at risk of water erosion and the siliceous sands are considered to have high risk to wind erosion. These soils are also known to have a low Phosphorus Retention Index (PRI), and it is considered that the proposed clearing of deep-rooted perennial vegetation is likely to result in increased nutrient loss from the soil profile (McPharlin et al, 1990).

No salinity or acid sulphate soil risk is identified for the area under application.

The direct effects of the proposal to clear 38.7 hectares of deep-rooted perennial vegetation from sloping land is likely to result in land degradation in the form of increased surface water runoff and soil erosion, with potential downslope impacts including increased recharge, sedimentation and eutrophication.

During a site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009), the applicant advised DEC staff that the clearing and subsequent rehabilitation would be staged in blocks of approximately 2.5 hectares at a time to minimise the risk of land and water degradation.

Advice provided by the Commissioner of Soil and Land Conservation (DAFWA 2009) indicated that the risk of land degradation in the form of salinity, wind erosion, water erosion or waterlogging is low.

The proposed clearing is not likely to be at variance with this Principle.

The clearing permit will contain a condition acknowledging the staged approach to clearing.

Methodology

References
- DEC 2009
- DAFWA 2009
- Northcote et al, 1960-68
- McPharlin et al, 1990

GIS datasets
- Soils, Statewide
- Salinity Mapping LM 25m - DOLA 00
- Salinity Risk LM 25m - DOLA 00
- Acid Sulfate Soil Risk Map, Swan Coastal Plain (Risk Class)
- Topographic Contours, Statewide

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

Proposal may be at variance to this Principle

There are approximately nine nature reserves and one state forest within 10 kilometres of the area under application. The nearest are Breera Road Nature Reserve approximately 300 metres north, Chandala Nature Reserve approximately 2 kilometres south, and Timaru Nature Reserve approximately 2.2 kilometres west. Two of these occur downslope of the area under application.

Several private conservation areas (comprising DAFWA instruments and Land for Wildlife sites) occur within 10 kilometres of the area under application. The nearest is within 300 metres. The majority of these occur downslope of the area under application.

The proposed clearing may be at variance with this principle, however given the predominantly degraded condition of the vegetation the impacts are likely to be minimal.

Methodology

GIS datasets
- DEC Managed Lands and Waters
- Gingin 50cm Orthomosaic - Landgate 2006
- Topographic Contours, Statewide

SAC biodatasets
- DAFWA Heritage Shapes
- Land for Wildlife

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments

Proposal is not likely to be at variance to this Principle

Average annual rainfall for the area under application is 800 millimetres, with average evapotranspiration of 700 millimetres.

The area under application is located within the Ellen Brook Sub-catchment.

A 'conservation category' wetland (Breera Brook) is located approximately 2.2 kilometres north.

The proposed clearing could potentially contribute to sedimentation and eutrophication of a 'multiple use' wetland located approximately 680 metres west of the proposed sand extraction site adjacent to the proposed haul road, however any impact is not expected to be significant given the distance and the presence of native vegetation between the area under application and the wetland.

The direct effects of the proposal to clear 38.7 hectares of deep-rooted perennial vegetation from sloping land has potential downslope impacts including sedimentation and eutrophication.

On a site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009), the applicant advised DEC staff that the clearing and subsequent rehabilitation would be staged in blocks of approximately 2.5 hectares at a time to minimise the risk of land and water degradation.

Changed local hydrology (water table level) is likely to result from sand extraction.

Advice provided by the Commissioner of Soil and Land Conservation (DAFWA 2009) indicated that the risk of

eutrophication is low.

The proposed clearing is not likely to be at variance with this Principle.

Methodology References
- DAFWA 2009

GIS datasets
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
- Hydrography, linear (medium scale, 250k GA)
- Hydrographic Catchments - Subcatchments
- Evapotranspiration, Areal Actual
- Rainfall, Mean Average
- Topographic Contours, Statewide

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

The area under application is located on a west-facing slope at approximately 100-130 metres above sea level, and the soils are comprised of yellow earthy sands with siliceous sands (Northcote et al, 1960-68).

The direct effects of the proposal to clear 38.7 hectares of deep-rooted perennial vegetation from sloping land has potential downslope impacts including increased recharge. However sandy soils are unlikely to facilitate flooding.

On a site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009), the applicant advised DEC staff that the clearing and subsequent rehabilitation would be staged in blocks of approximately 2.5 hectares at a time to minimise the risk of land and water degradation.

Advice provided by the Commissioner of Soil and Land Conservation (DAFWA 2009) indicated that the risk of flooding is low.

The proposed clearing is not likely to be at variance with this Principle.

Methodology References
- DEC 2009
- DAFWA 2009
- Northcote et al, 1960-68
- McPharlin et al, 1990

GIS datasets
- Soils, Statewide
- Topographic Contours, Statewide

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The sand extraction proposal for which this application is received has previously been referred to the Environmental Protection Authority for environmental impact assessment under section 38 of the Environmental Protection Act 1986. The EPA Chairman made a determination on 4 May 2009 'Not Assessed, Public Advice Given - managed under Part V of the Environmental Protection Act 1986' (EPA 2009).

Direct interest letters were sent to the Shire of Gingin (TRIM ref. DOC109367) and Lower Chittering Land Conservation District Committee (TRIM ref. DOC109368). A submission was received from the Lower Chittering Land Conservation District Committee (TRIM ref. DOC111803) raising points in relation to the location of the area under application in the Ellen Brook Catchment, the close proximity of rare flora that may be impacted by changed hydrology as a result of sand extraction, the need to clear for the haul road, and the extent of clearing.

Planning consent (development approval and an extractive industry licence) from the Shire of Gingin (2008) is required for this clearing proposal. During a site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009), the applicant advised DEC staff that planning consent had been applied for and that the Shire of Gingin was awaiting the outcome of DEC's assessment of this clearing application prior to making a decision. Planning consent was given by the Shire of Gingin on 29 September 2010.

There are several Aboriginal Sites of Significance within 10 kilometres of the area under application. The nearest overlaps the northern end of the area under application. The applicant should ensure compliance with any obligations under the Aboriginal Heritage Act 1972.

The area under application is within the zone of a live unsurveyed mining tenement (E70/2742).

The area under application is within the Proclaimed Groundwater Area of Gingin and any abstraction of groundwater would require a licence. The Appeals Report (September 2009) states that the proponent has submitted a water licence application with the Department of Water and presently licences CAW168496(1), CAW168933(1) and CAW168602(1) allowing a drilling program have been issued. During a site inspection of the area under application undertaken by DEC staff on 15 December 2009 (DEC 2009), the applicant advised DEC staff that the licences had been applied for and were yet to be issued.

Methodology

References
- DEC 2009
- EPA 2009

GIS databases:
- Aboriginal Sites of Significance
- Mining Tenement
- Environmental Impact Assessment

4. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Connell, S. (2006) Flora and Vegetation of Lot 3 (Diagram 34114) Ioppolo Road, Gingin. Report prepared for Muchea Sands Pty Ltd and Ross Maitland Love by Dr. Stephen Connell, consultant botanist.

DAFWA (2009) Land and water degradation advice provided by the Commissioner of Soil and Land Conservation. Provided 14 December 2009. Department of Agriculture and Food WA (TRIM ref. DOC111769).

DEC (2007) DEC Fauna Habitat Notes.xls. February 2007. Department of Environment and Conservation, Western Australia.

DEC (2007b) CAR Reserve Analysis spreadsheet. Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia, Technical Report 249, Department of Agriculture Western Australia, South Perth.

DEC (2009) Site Inspection Report for Clearing Permit Application CPS 3435/1, Lot 3 on Diagram 34114, Breera. Site inspection undertaken 15 December 2009. Department of Environment and Conservation, Western Australia (TRIM ref. DOC112708).

Department of Agriculture (2002). Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3

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5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment

DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)